

EXHIBIT 11

1 IN THE UNITED STATES DISTRICT COURT FOR THE
 2 NORTHERN DISTRICT OF OKLAHOMA
 3
 4

5 W. A. DREW EDMONDSON, in his)
 6 capacity as ATTORNEY GENERAL)
 7 OF THE STATE OF OKLAHOMA and)
 8 OKLAHOMA SECRETARY OF THE)
 9 ENVIRONMENT C. MILES TOLBERT,)
 10 in his capacity as the)
 11 TRUSTEE FOR NATURAL RESOURCES)
 12 FOR THE STATE OF OKLAHOMA,)

13 Plaintiff,)

14 vs.)

4:05-CV-00329-TCK-SAJ

15 TYSON FOODS, INC., et al,)

16 Defendants.)

17 -----
 18 THE VIDEOTAPED DEPOSITION OF
 19 TOMMY DANIEL, PhD, produced as a witness on
 20 behalf of the Plaintiff in the above styled and
 21 numbered cause, taken on the 26th day of November,
 22 2007, in the City of Fayetteville, County of
 23 Washington, State of Arkansas, before me, Lisa A.
 24 Steinmeyer, a Certified Shorthand Reporter, duly
 25 certified under and by virtue of the laws of the
 State of Oklahoma.

TULSA FREELANCE REPORTERS
918-587-2878

I N D E X

W I T N E S S

P A G E

TOMMY DANIEL, PhD

Direct Examination by Mr. Garren	5
Cross Examination by Mr. George	137
Cross Examination by Mr. McDaniel	165
Cross Examination by Mr. Tucker	174
Redirect Examination by Mr. Garren	177
Recross Examination by Mr. McDaniel	190

Signature Page 197

Reporter's Certificate 198

1 whatever and let him change the tape and come back.

2 VIDEOGRAPHER: We're now off the Record.

3 The time is 10:01 a.m.

4 (Following a short recess at 10:00
5 a.m., proceedings continued on the Record at 10:11
6 a.m.)

7 VIDEOGRAPHER: We are back on the Record.

8 The time is 10:11 a.m.

9 Q Dr. Daniel, I'm going to hand you now Exhibit
10 No. 4 and ask you to look at that document. This is 10:11AM
11 one of your papers again.

12 A Uh-huh.

13 Q Do you remember or are you familiar with that
14 document?

15 A I remember it. I'm not familiar with it but I 10:12AM
16 remember writing it, yes.

17 Q This was published in May, June of 1995 in the
18 Journal of Soil & Water Conservation; correct?

19 A Yes.

20 Q I'm going to ask you about a couple of 10:12AM
21 statements within this article and the first one I
22 would direct your attention to would be in the first
23 paragraph, the second sentence, and I'll go ahead
24 and read it. It says, rapid and concentrated growth
25 of the poultry industry in several states, however, 10:12AM

TULSA FREELANCE REPORTERS
918-587-2878

1 increased the concern about disposing of poultry
2 waste with respect to non-point source pollution.
3 Let me ask you, to your knowledge does that include
4 the area of northwest Arkansas and northeast

5 Oklahoma?

10:13AM

6 **A** Yes.

7 **Q** You're familiar, I assume, are you not, with
8 the Illinois River watershed and its general
9 boundaries?

10 **A** Yes.

10:13AM

11 **Q** This document also says that nitrate leaching
12 into the groundwater, non-point source phosphorus
13 runoff into surface water bodies and release of
14 pathogenic microorganisms are three of the main
15 problems encountered with improper management of
16 this resource. The reference to resource there is
17 the poultry litter or waste being land applied, is
18 it not?

10:13AM

19 **A** Yes.

20 **Q** Is that still your opinion today?

10:14AM

21 **A** Let's see. It's pretty close. The text is
22 where?

23 **Q** It's further down in that same paragraph.

24 **A** Okay. Nitrate leaching into the groundwater,
25 non-point source phosphorous runoff into surface --

10:14AM

1 release of pathogenic microorganisms -- I would
2 think so, yes.

3 Q Tell the court, if you would, what you mean by
4 pathogenic microorganisms.

5 A Well, I think -- what I think is implied there 10:14AM
6 is those organisms that -- again, I'm not a
7 microbiologist -- Escherichia coli and fecal
8 coliform and those sort of organisms.

9 Q Are those organisms known to create risk to
10 the environment? 10:15AM

11 MR. McDANIEL: Object to the form.

12 A Again, I'm not a microbiologist, but my
13 understanding that like swimming -- I don't know --
14 sometimes it's banned in Beaver Lake and some of the
15 water bodies, and it's due to the presence of these 10:15AM
16 organisms.

17 Q The ones you just described, E. coli and fecal
18 coliform and maybe others?

19 A And probably others. It again -- difficult to
20 show cause and effect. You know, our microbiologist 10:15AM
21 tells us that many times these result from geese,
22 wildlife.

23 Q And I'm not asking about the sourcing of this.

24 A Excuse me.

25 Q I'm just asking about the fact that the 10:15AM

1 pathogenic microorganisms you're referring to here
2 are those such as E. coli and fecal coliform. Those
3 type of organisms are found in poultry waste, are
4 they not?

5 **A** Yes. 10:16AM

6 **Q** This goes on to say in the very last sentence
7 in that column, since the agronomic value of poultry
8 litter is well known and has been thoroughly
9 documented in numerous publications, the main issues
10 addressed in this paper are environmental rather 10:16AM
11 than agronomic, and you cite some other people there
12 who have documented the agronomic value of poultry
13 litter. Can you tell the court what you mean by
14 that, what its agronomic value is?

15 **A** Poultry litter, as you described it earlier, 10:16AM
16 is an excellent fertilizer. It has a very low
17 seed-in ratio. It has a high amount of organic
18 matter. It's excellent fertilizer.

19 **Q** These reports that are -- I'm sorry, the
20 authors of reports that supposedly document this in 10:17AM
21 your publication don't have a date on them. What
22 period of time are we talking about that this is
23 well known and well documented; can you give me a
24 rough estimate?

25 **A** Certainly. 10:17AM

1 Q This was published in '95, the one we are
2 looking at, Exhibit 4.

3 A Let's take one there. Wilkinson was '79 and
4 '90. I mean these are -- doesn't take a rocket
5 scientist to figure out this is good fertilizer. 10:17AM
6 When you put it out, it's obvious where you put
7 litter and where you haven't.

8 Q At Page 322 you point out that litter is
9 removed after five grow-outs and that it says
10 currently litter is removed after five grow-outs, 10:18AM
11 which is once a year. Upon removal, this material
12 may be directly land applied or temporarily stored.
13 Let me ask you this: Do you know whether or not
14 once it's removed, that the poultry waste, poultry
15 litter has any use in the growing of the poultry 10:18AM
16 thereafter?

17 A Not to my knowledge, no.

18 Q That's in part why it's being spread on the
19 land, is it not?

20 A Yes. 10:18AM

21 Q Under the heading land application manure, you
22 talk about except for small amounts of poultry
23 manure used in animal feed, the major portion,
24 greater than 90 percent, is applied to agricultural
25 land. That's the customary practice that I think we 10:19AM

1 talked about earlier; is that correct?

2 A Of land applying it?

3 Q Yes, sir.

4 A Yes. Go ahead.

5 Q And when you're talking about it in this 10:19AM
6 article, are you referencing a specific area or is
7 that just generally true?

8 A I think we're implying that it's generally
9 true nationwide, not only for litter but for the
10 animal waste. 10:19AM

11 Q All right.

12 A And I will point out that using poultry manure
13 as animal feed is no longer practiced.

14 Q Okay. It was tried and used for a while,
15 wasn't it? 10:19AM

16 A Apparently.

17 Q All right. You go on to say in the same
18 article at the same place, this application,
19 referring to the land application of the poultry
20 waste, usually occurs no more than a few miles from 10:19AM
21 where it's produced. I think further down it says
22 under transportation, it's usually restricted to six
23 to twelve miles. Did you gain that information from
24 your discussions with those in the industry that you
25 talked about earlier? 10:20AM

1 **A** Yes. It's generally -- excuse me -- from
2 talking to growers. I think there have been some
3 studies, surveys done.

4 **Q** Generally speaking can you tell me why it's
5 limited to the six to twelve miles we're talking 10:20AM
6 about moving it?

7 **A** Well, it's some degree of a physical thing.
8 Poultry litter is a very bulky material, bulk
9 density of about one, point one, point five, and it
10 is cost of transport. I think there's studies today 10:20AM
11 that would say that litter is worth about 30 or \$40
12 and you can afford to transport it about 30 or 40
13 miles.

14 **Q** In 1995 you're reporting it was limited to as
15 much as six to twelve miles; correct? 10:21AM

16 **A** Yes.

17 **Q** When you use the term poultry waste or poultry
18 litter in this article and others, does that include
19 the waste generated from broiler chickens?

20 **A** Yes. 10:21AM

21 **Q** Does it include the waste generated from
22 layers?

23 **A** We probably refer mostly to litter from
24 broiler chickens and very limited layer operations.
25 That's liquid material or have been. 10:21AM

1 Q Yes, and then would it -- would that term
2 poultry litter or poultry waste refer to that
3 produced by poults?

4 A If it has bedding and -- yes.

5 Q And, likewise, would that term poultry waste 10:21AM
6 or poultry litter include turkeys?

7 A Yes.

8 Q In the second column of this same page at the
9 top of the first paragraph, I'll read it so you can
10 find it. It says, runoff of dissolved P -- that 10:22AM
11 means phosphorus, does it not?

12 A Yes.

13 Q From fields receiving poultry litter can occur
14 even when best management practices, BMPs, are
15 utilized. Is that still your opinion today? 10:22AM

16 A You will -- yes.

17 Q Okay. I can finish that paragraph so it
18 brings it into context. It says this is because
19 poultry litter contains high concentrations of water
20 soluble P, often in excess of 2,000 milligrams or 10:22AM
21 kilogram to the one power. This fraction is readily
22 transported in runoff water during intense rainfall
23 events. That's essentially how you're saying
24 phosphorus, soluble P gets into the water source.
25 Is that a fair statement? 10:23AM

TULSA FREELANCE REPORTERS
918-587-2878

1 published on a date of March/April 1996. In this
2 document at the first column, most of the way down
3 there's a sentence that starts, the loss of
4 phosphorus in agricultural runoff is of increasing
5 concern in several areas of the United States,
6 primarily where the production of phosphorus in
7 manure from confined animal operations exceeds local
8 crop requirements of phosphorus. Is one of those
9 areas the area of the Illinois River watershed in
10 your opinion?

11:06AM

11:06AM

11 **A** Well, I think we're talking about any area
12 where you have confined animal feeding operations in
13 a high density like the Bosque River, certainly in
14 northwest Arkansas, Georgia, Alabama, Delmarva
15 Peninsula.

11:06AM

16 **Q** I've been handed a queue card. We're going to
17 take another one of those breaks for film.

18 VIDEOGRAPHER: We're now off the Record.
19 The time is now 11:07 a.m.

20 (Following a short recess at 11:06
21 a.m., proceedings continued on the Record at 11:17
22 a.m.)

11:07AM

23 VIDEOGRAPHER: We are back on the Record.
24 The time is 11:17 a.m.

25 **Q** Dr. Daniel, I've handed you Exhibit 7, which

11:17AM

TULSA FREELANCE REPORTERS
918-587-2878

1 Q And drinking, how is accelerated
2 eutrophication a problem with drinking?

3 A Well, it can result in -- at high levels of --
4 treatment cost goes up, taste, potential taste or
5 odor problems.

11:26AM

6 Q Accelerated eutrophication can result in
7 surface blooms of cyanobacteria causing fish kills,
8 unpalatable -- unpalatability of drinking water and
9 formation of trihalomethane during chlorination. Is
10 that true?

11:26AM

11 A Yes.

12 Q And it's true today?

13 A Uh-huh.

14 Q And that -- and is it true within the IRW?

15 A Yes.

11:26AM

16 Q Let's talk a little bit about cyanobacteria.
17 Is that also something that's commonly referred to
18 as blue-green algae?

19 A I hope it is. Yes. I'm not an algae
20 specialist either. Sorry.

11:26AM

21 Q Do you know whether or not cyanobacteria or
22 blue-green algae can be harmful to animals or
23 humans?

24 A I'm not sure about the cyanobacteria but I
25 know there are some major harmful algae blooms that

11:27AM

TULSA FREELANCE REPORTERS
918-587-2878

1 Q All right. Do you know whether or not it's a
2 carcinogenic?

3 A Again, it's my understanding that at certain
4 levels it is a carcinogenic.

5 Q Moving to Page 256 in the conclusions portion 11:28AM
6 of this, the first part of that conclusion it says
7 generally the loss of agricultural phosphorus in
8 runoff is not of economic importance to a farmer.
9 Tell me what you mean.

10 A In general when you land apply manure, and 11:29AM
11 historically when we've taught classes in Soils 101,
12 we said phosphorus didn't move in the environment,
13 did not move, but to answer your question, if we put
14 out X amount of phosphorus and we get a rain on it,
15 we may lose 2 to 3 percent of that phosphorus that 11:29AM
16 leaves that area. That's not much to a grower, I
17 mean, but to the environment it may be a lot. I
18 think that's basically what we're saying.

19 Q All right. It goes on to say at that same
20 place in the article, however, it can lead to 11:30AM
21 significant off-site economic impacts, in some cases
22 occurring many miles from the phosphorus source. Is
23 that still true in your opinion today?

24 A Uh-huh, yes.

25 Q And when you say that, are you -- well, let me 11:30AM

TULSA FREELANCE REPORTERS
918-587-2878